



V18551

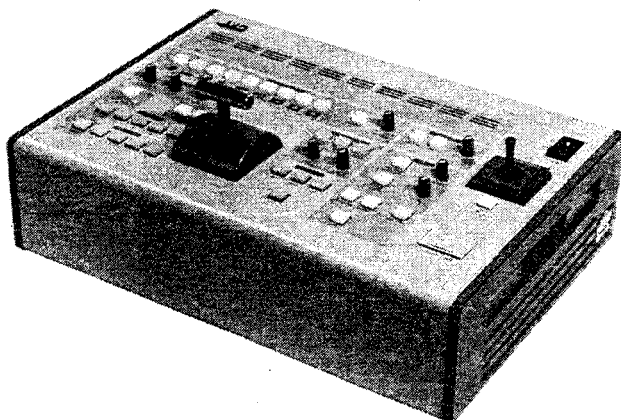
JVC | Instructions

Y/C SPECIAL EFFECTS GENERATOR

KM-1600

Bedienungsanleitung: Y/C-TRICKMISCHER

Manuel d'instructions: GENERATEUR D'EFFETS SPECIAUX Y/C



The instructions are given in three languages:

English from page 1 to 18
German from page 19 to 36
French from page 37 to 54

Bedienungsanleitung in drei Sprachen:

Englisch: Seite 1 bis 18
Deutsch: Seite 19 bis 36
Französische: Seite 37 bis 54

Les explications techniques sont données en trois langues:

Anglais, page 1 à 18
Allemand, page 19 à 36
Français, page 37 à 54

WARNINGS

Due to design modifications, data given in this instruction book are subject to possible change without prior notice.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THIS UNIT TO RAIN OR
MOISTURE.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE
OU D'ELECTROCUTION, NE PAS EXPOSER
L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

Warning Notice **FOR YOUR SAFETY**

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively grounded through the normal household wiring.

Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth ground. Wrongly wired extension cords are a major cause of fatalities.

The fact that the equipment operates satisfactorily does not imply that the power point is properly grounded and that the installation is completely safe. For your safety, if in any doubt about the correct grounding of the power point, consult a qualified electrician.

WARNING—THIS APPLIANCE MUST **BE EARTHED** **IMPORTANT**

The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW: EARTH
BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug, proceed as follows. The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol \perp or coloured GREEN or GREEN-AND-YELLOW. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

Thank you for purchasing the JVC KM-1600 Y/C Special Effects Generator.

To utilize this product to its fullest, please read this instruction booklet carefully and entirely for the best understanding of its capabilities and operation.

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FEATURES

- **Special effects generator compatible with Y/C 443 signal***
All four input channels can handle Y/C signals and processing circuits are capable of processing Y/C signals. The Y/C output from a color video camera can be connected. A composite signal output is provided in addition to Y/C signal outputs. **No composite video input is provided.**
*The Y/C signal output from an S-VHS VTR cannot be input directly the KM-1600 due to jitter.
- **Chroma keying provided as standard**
An RGB chroma key generator is incorporated, allowing chroma keying without an external unit. Chroma keying is possible with the RGB signal on its own.
- **DSK (Downstream keyer) function**
A variety of DSK functions are provided including the selection of keyhole polarity (negative/positive), a masking function, a coloring function (DSK COLOR) which allows coloring in any required color, etc.
Since RGB signal input connectors are provided, characters created by a character generator can be used for keying.
- **Auto transition function**
Automatic operation of the main effects (mixing and wipes) and downstream keying is possible. The transition time can be set from 0 sec. for cuts, to about 20 sec.
- **The color matte and color bars generator are incorporated**
Any required color can be generated as the background or downstream key. It is also possible to switch between the background color and a color bars signal.
- **Easy-to-operate flip-flop bus**
The KM-1600 has a flip-flop function in which the program bus and preset bus are automatically switched whenever the fader lever or AUTO button is operated.
- **Built-in data memory**
The background color or DSK color set with the color matte controls and the auto transition time (main effect, DSK) are held in memory.
The keying slice level and chroma key slice level are also held in memory, independently for each input channel.

OTHER FEATURES

- Nine wipe patterns are provided, three of which can be positioned using the positioner joystick.
- Two black burst signal output connectors are provided.
- Masking of part of the DSK or key input signal by the wipe pattern is possible.
- The wipe direction can be switched between normal and reverse.
- The softness of the edges of wipes can be adjusted.
- A genlock input connector is provided, allowing genlocking with external system components.
- A GPI function which permits control from a video editor is provided.
- Camera tally output terminals are provided.

PRECAUTIONS

Safety Precautions

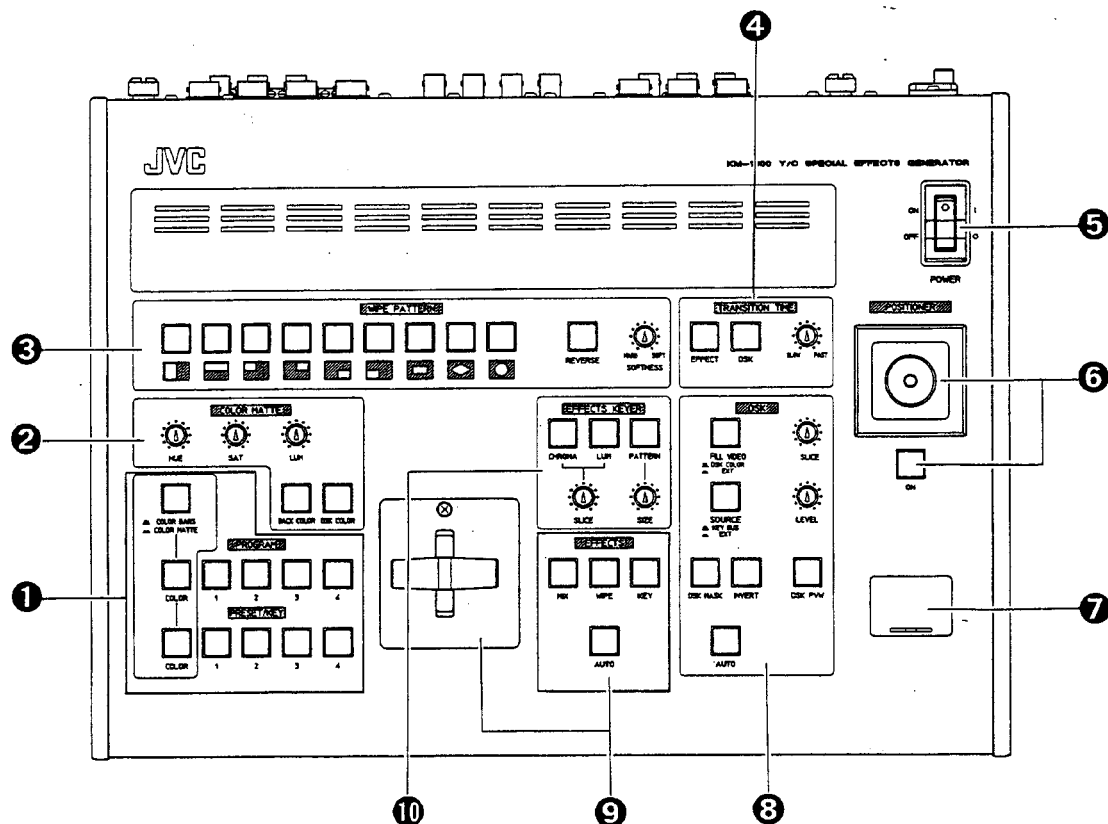
- Do not modify the unit or operate it with the cover panel removed.
- Do not allow inflammable objects, water or metallic objects to get inside the unit as it will cause damage or malfunction.
- When not to be used for a long period of time, be sure to disconnect the power cord from the power outlet.
- When there is any abnormality (noise, smell, smoke, etc.) with the unit, immediately switch off, disconnect the power cord from the power outlet, and contact your nearest JVC-authorized service agent.

Handling Precautions

- A composite video signal (VBS) cannot be input.
- For an extended service life, avoid using the unit in a place subject to extreme temperatures, high humidity, strong vibrations, excessive dust, or in a place near the source of noise.
- Avoid strong vibrations and shocks when installing or carrying.
- Do not apply strong force to the fader lever or handle it violently.
- The standard positioning of the control panel is horizontal. Never lean it by more than 45° from the horizontal.
- The video output signal (component) of the KM-1600 conforms to the specifications of S-VHS video recorders.
- When the power is switched on, the setting of fader lever corresponds to that obtained when it is pushed to either the top or bottom position, regardless of its physical positions. Before the power is switched on, the fader lever should be pushed all the way up or down.
- When the power is switched off even for a moment, the settings of all the controls are cancelled and reset to their original (settings obtained when the power is switched on). If the unit should be used where power supply conditions are not stable, it is recommended that a backup power supply be used.

CONTROLS, CONNECTORS AND INDICATORS

CONTROL PANEL



1 Cross-point select buttons

For selecting the video sources on the two buses. One channel can be selected from four Y/C video input signals (1 to 4) and internally generated color signals (background color or color bars) on each bus.

- **PROGRAM (1 – 4, COLOR) select buttons**
To select the signal on the PROGRAM bus.
- **PRESET/KEY (1 – 4, COLOR) select buttons**
To select the signal now standing by which will be output to the PROGRAM bus by operation of the EFFECTS buttons and fader lever 9 to become the output video signal. These buttons are also used as key source select buttons in keying performed by the EFFECTS KEYER controls 10 or the DSK controls 8.
- **COLOR BARS/BACK COLOR select button**
To select which of the two color signals is to be sent to the above two buses. If the button is lit, the built-in color bars is selected and if it is not lit, the color signal set by the COLOR MATTE controls 2 is selected.

2 COLOR MATTE controls

The hue, saturation and brightness of the two color signals are set using the HUE/SAT/LUM controls.

- **BACK COLOR button**
Press this button to set the color signal (BACK COLOR) used by the cross-point select buttons 1.
- **DSK COLOR button**
Press this button to set the color signal (DSK COLOR) used by the DSK controls 8.

- **HUE:** Hue control.
- **SAT:** Color density (saturation) control
- **LUM:** Brightness control

3 WIPE PATTERN select buttons and controls

- **Wipe pattern select buttons**
To select one of the 9 wipe patterns, as indicated under the buttons. The wipe direction will be the direction in which the white area increases.
- **REVERSE (Wipe pattern reverse) button**
To reverse the wipe pattern, press this button. The wipe direction will be the direction in which the black area increases.
- **SOFTNESS control**
Sets the shapness of the edges of the wipe pattern. When turned all the way to the HARD position, the softness circuit is switched off; as it is turned towards the SOFT position, the degree of softness will increase.

4 TRANSITION TIME buttons and control

Sets the transition times for the two automatic operations.

- **EFFECTS button**
Press to set the transition time of the operation performed by the AUTO button of the EFFECTS controls 9.
- **DSK button**
Press to set the transition time of the operation performed by the AUTO button of the DSK controls 8.

- Transition time control

The time within which the effect is performed can be set from 0 sec. to approx. 20 sec. The effect time will be 0 sec. when set to the FAST position, approx. 4 sec. when set in the center position and approx. 20 sec. when set to the SLOW position.




5 POWER switch

Power ON/OFF switch.

6 POSITIONER controls

To move the position of the wipe pattern using the joystick.

- Positioner ON/OFF button

When the button is lit (ON), the wipe pattern can be moved using the joystick above the button. Three patterns can be moved: (), () and ().

7 GENLOCK PHASE adjust control cover

The color subcarrier and horizontal phase controls to be used when genlocking to an external reference signal are under this cover. Use when setting up the system.

8 DSK (Downstream Keyer) controls

These set the DSK mode and send it to the PROGRAM bus.

- FILL VIDEO select button

Selects the key fill video signal to be used for the DSK effect.

DSK COLOR (lit): Selects the color signal (DSK color) generated by the COLOR MATTE controls 2.

EXT (not lit): Selects the video signal produced from the RGB signal input to the DSK INPUT "R/G/B" connectors 17 on the rear panel.

- SOURCE (DSK source select) button

Selects the video signal to be used as the DSK source signal.

KEY BUS (lit): Selects the luminance (Y) component of the video signal selected on the PRESET/KEY bus by the cross-point select buttons 1.

EXT (not lit): Selects the signal input from DSK INPUT "KEY" connectors 17 on the rear panel.

Reference information

When the EXT mode is selected, the signal input to the DSK INPUT "R/G/B" connectors 17 on the rear panel can be used as the key source. In this case, internal switching is necessary. If required, consult a JVC-authorized service agent.

- DSK MASK (DSK masking) ON/OFF button

It is possible to mask the area in which you do not want to perform keying, using the wipe pattern set by the WIPE PATTERN controls 3 when the button is lit (ON).

- INVERT (Key source invert) button

When the button is lit (ON), the key source is inverted. By doing this, it is possible to perform keying using the area of the key source with lower brightness.

- SLICE (Slice level) control

Sets the slice level of the DSK source signal.

- LEVEL (DSK mixing level) control

Sets the DSK mixing level with respect to the PROGRAM bus video signal.

- DSK PVW (DSK preview) ON/OFF button

When the button is lit (ON), the DSK effect can be confirmed on the preview monitor before the DSK effect is sent to the PROGRAM bus.

When the DSK effect is sent to the PROGRAM bus, the button automatically goes out (OFF).

- AUTO (DSK send) button

Switches ON or OFF the DSK effect with the time set by the TRANSITION TIME controls 4. While the effect is in progress, the button blinks.

9 EFFECTS buttons and fader lever

These control the sending of the video signal selected by the PRESET/KEY bus to the PROGRAM bus and the keying effect set by the EFFECTS KEYSER controls 10 using a mix or wipe effect.

- Effect mode select buttons

MIX: Switches the mix effect ON/OFF. (Cannot be used together with the wipe effect.)

WIPE: Switches the wipe effect ON/OFF. (Cannot be used together with the mix effect.)

KEY: Press to switch ON to send the keying effect set with the EFFECTS KEYSER controls 10 to the PROGRAM bus.

- AUTO button

Automatically sends the effect selected by the effect mode select buttons to the PROGRAM bus with the timing set by the TRANSITION TIME controls 4. The button blinks while the effect is in progress.

- Fader lever

Sends the effect selected by the effect mode select button to the PROGRAM bus according to the movement of the fader lever.

10 EFFECTS KEYSER controls

These set the keying effect which is switched ON or OFF by the EFFECTS controls 9. They also set the DSK masking performed by the DSK controls 8.

- CHROMA key ON/OFF button

When the button is lit (ON), chroma keying will be performed.

- LUM (luminance) key ON/OFF button

When the button is lit (ON), luminance keying will be performed.

- PATTERN key ON/OFF button

When the button is lit (ON), pattern keying will be performed.

When pressed together with the CHROMA button or LUM button, the portion you do not wish to be keyed in chroma keying or luminance keying can be masked (covered) using a wipe pattern.

Note:

Only one of chroma keying, luminance keying or pattern keying can be selected; two or more types of keying cannot be performed simultaneously.

- SLICE control

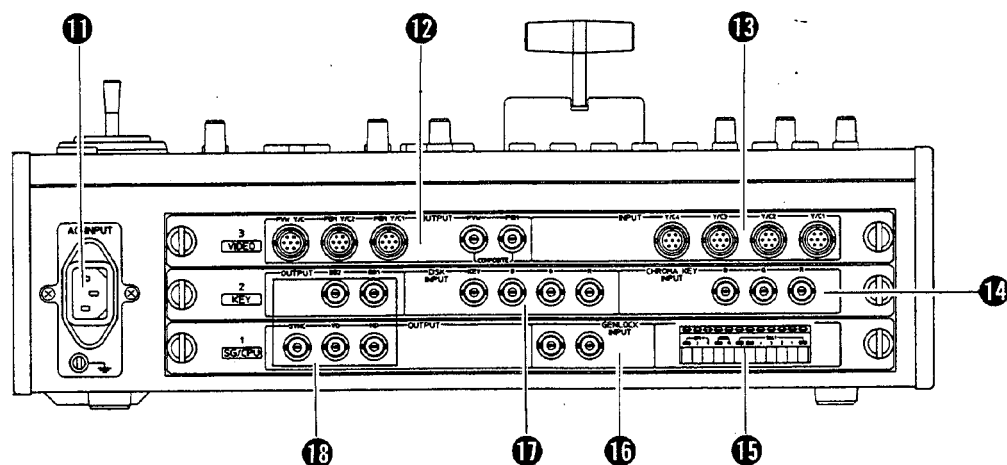
When the chroma key or luminance key is ON, sets the slice level of the key source.

- SIZE control

When the pattern key is ON, the size of the wipe pattern used as the key source can be set.

The size of the wipe pattern during masking can also be set as required.

REAR PANEL



11 AC INPUT terminal

Connect to an AC outlet with the provided AC power cord.

12 Video output connectors

- PGM Y/C 1, 2 (7-pin connectors)
The PROGRAM bus video signal is output as a Y/C 443 signal. There are two channels.

Reference Information

The output signal from the PGM Y/C1 can be internally switched over to the Y/C 924 format. For details, consult an authorized JVC service agent.

- PVW Y/C (7-pin connector)
The preview video signal is output as a Y/C 443 signal.
- PGM COMPOSITE (BNC connector)
The video signal selected by the PROGRAM bus is output as a composite signal (VBS).
- PVW COMPOSITE (BNC connector)
The preview video signal is output as a composite signal (VBS).

13 Video input connectors

- Y/C 1 to 4 (7-pin connectors)
Video input connectors exclusively for Y/C 443 signals. Connectors 1 to 4 correspond to the cross-point select buttons ①.

14 CHROMA KEY INPUT (Chroma key effect signal input) connectors [BNC connectors]

Connectors to supply the RGB signal used by the chroma key effect set by the EFFECTS KEYS controls ⑩.

15 Tally output and GPI input terminals

- TALLY 1 to 4 and MODE (Tally output terminals)
Normally, power (5 VDC, 10 mA max.) is fed to these terminals. If the MODE terminal is shorted to the GND terminal, make-contact can be used.
- GPI 1 & 2 control terminals
Using these terminals, it is possible to control the KM-1600 from an external unit such as an editor, etc.
GPI-1: If this terminal is shorted to the GND terminal, the KM-1600 operates in the same way as when the AUTO button of the EFFECTS controls ⑨ is pressed.

GPI-2: If this terminal is shorted to the GND terminal, the KM-1600 will operate in the same way as when the AUTO button of the DSK controls ⑧ is pressed.

Reference Information

When used together with the MII KR-M820 VTR, by using the GPI 1 and 2 terminals simultaneously, the video signal being output to the PROGRAM bus can be exchanged (swapped) with the video signal standing by on the PRESET/KEY bus automatically. In this case, internal switching is required. For details, consult a JVC-authorized service agent.

16 GENLOCK INPUT (External reference signal input) connectors [BNC connectors]

A reference genlocking signal (composite video signal or black burst signal) can be connected. One of the two connectors can be used as a loop through output connector. If it is not used for loop through connection, terminate it with the provided 75-ohm termination plug.

17 DSK INPUT (DSK effect signal input) connectors [BNC connectors]

- R/G/B signal input connectors
Supply the RGB signal used for the DSK effect.
- KEY signal input connector
Input the signal which is to be the key source for DSK. In addition to the RGB signal output, when keying with a character generator, etc. having an output signal exclusively for keying (such as an edge signal, etc.), it is input to this connector.

18 Reference signal output connectors [BNC connectors]

Output connectors for various reference signals generated by the SSG in the KM-1600. If the KM-1600 is being used in the genlock mode, signals locked to the external reference signal are output.

- BB1/BB2: Black burst output connectors
Two channels can be used.
- HD: Horizontal sync signal output connector
- VD: Vertical sync signal output connector
- SYNC: Composite sync output connector

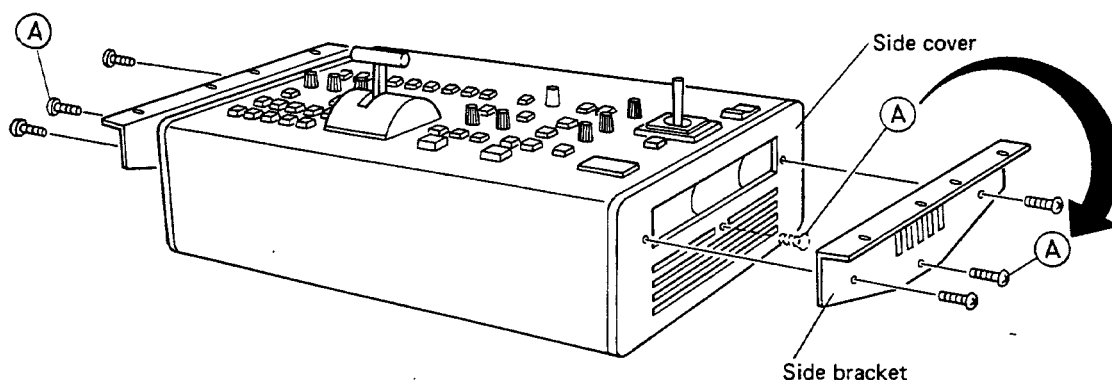
INSTALLATION

(when the KM-1600 is to be installed in a control console)

Although the KM-1600 is basically a desk-top model, it can be installed in an EIA rack size control console by using the provided side brackets.

Installing the side brackets

- (1) Remove screws (A) at the centers of the side covers on the right and left (one on each side).
- (2) Using these screws (A) and the screws provided, install the side brackets onto the KM-1600. (The side brackets are the same for the right and left.)



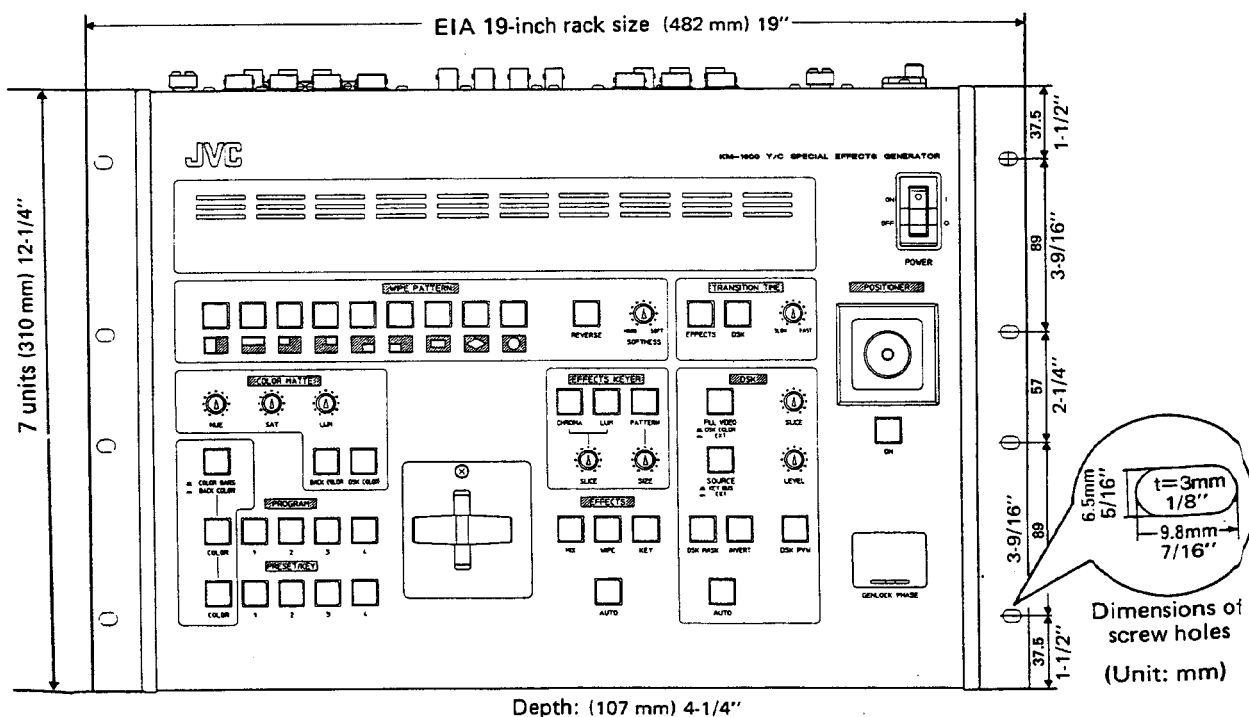
Installing in a control console, etc.

Install by referring to the dimension diagram shown below.

- When the KM-1600 is mounted in an AV console or rack, leave a 1-unit space (45 mm (1-13/16")) above the control panel for rear panel connections.
- The standard operating position of the control unit is horizontal. Do not install it at an angle greater than 45°,

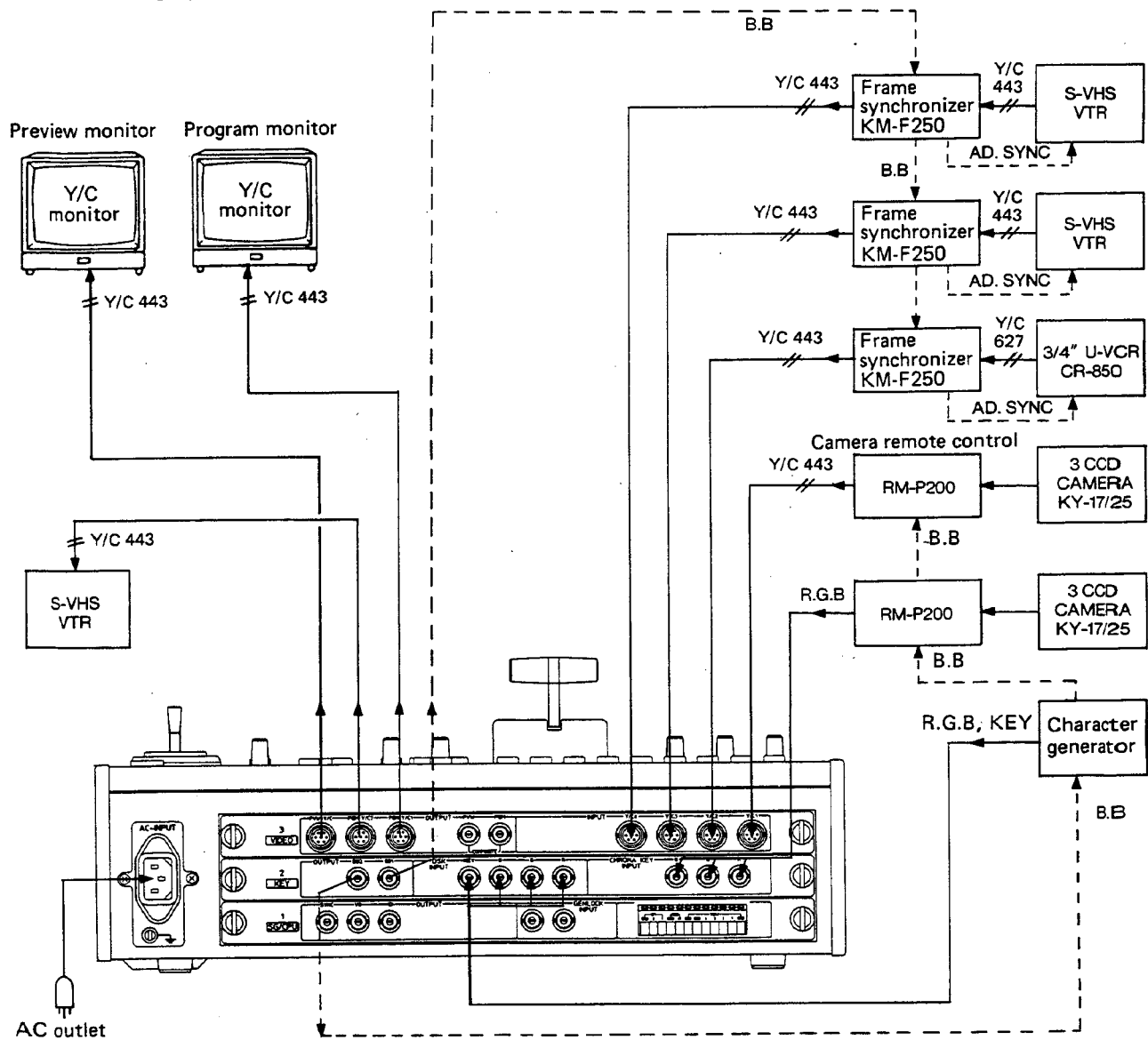
otherwise the fader may move under its own weight.

- Do not attempt to lift the control unit by the fader lever to prevent mechanical damage.
- Fixing screws are not provided. Screws with proper size should be prepared separately.



CONNECTIONS (example of system connection)

—//— : Showing 7 pin—7 pin Y/C cable



- For connections and operations of video cameras, remote control units, VTRs, etc., refer to the relevant instruction manuals.
- Video tape playback signals contain considerable jitter (where the intervals between the sync signals in the video signals are expanded or compressed) and dropouts. When applying special effects to these signals, use a TBC (time base corrector) or frame synchronizer to correct the time axis.

- Connection cables are not provided. Prepare them yourself.
- Use analog RGB as the RGB output of the character generator. TTL RGB signals cannot be connected.
- The output signal from the PGM Y/C1 can be internally switched over to the Y/C 924 format. For details, consult an authorized JVC service agent.

PREPARATIONS (System adjustments)

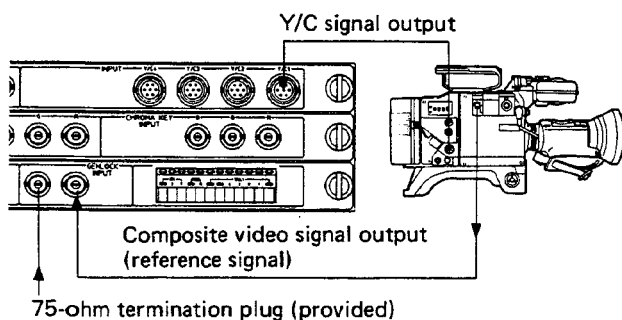
A system consisting of newly connected components may not function satisfactorily because their signal levels and phases may differ. This is why the system adjustments described here are required.

(For more accurate adjustment, a vectorscope, waveform monitor, etc. are required. If necessary, consult a JVC-authorized service agent.)

System adjustment-1

(To lock the internal sync signal of the KM-1600 to the external reference signal)

This adjustment is necessary when an external reference sync signal is input to the GENLOCK INPUT connector on the rear panel of the KM-1600. If the GENLOCK INPUT connector is not used, perform System adjustment-2 (see next page). The description below is an example in which a camera's composite video signal is used as the external reference signal.

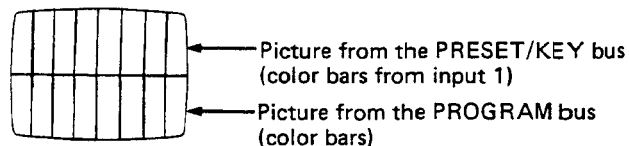


Notes:

- For adjustment, use an underscanning color monitor. Adjustments are not possible with an ordinary TV monitor.
- For operation of the color video cameras or remote control units, refer to the relevant instruction manuals.

- 1 After connecting as shown above, move the fader lever of the KM-1600 to its bottom position and turn on the power of all components.
- 2 When the power is switched on, the COLOR buttons of the cross-point select buttons will light for both buses. COLOR BARS will be selected automatically.
- 3 Check that the color bars pattern appears on the program monitor.
- 4 Select the pattern with the WIPE PATTERN buttons.
- 5 Press the WIPE button of the EFFECTS buttons.
- 6 Set the output signal of the camera to COLOR BARS.
- 7 Press PRESET/KEY bus select button "1".
- 8 Set the fader lever to the center position.

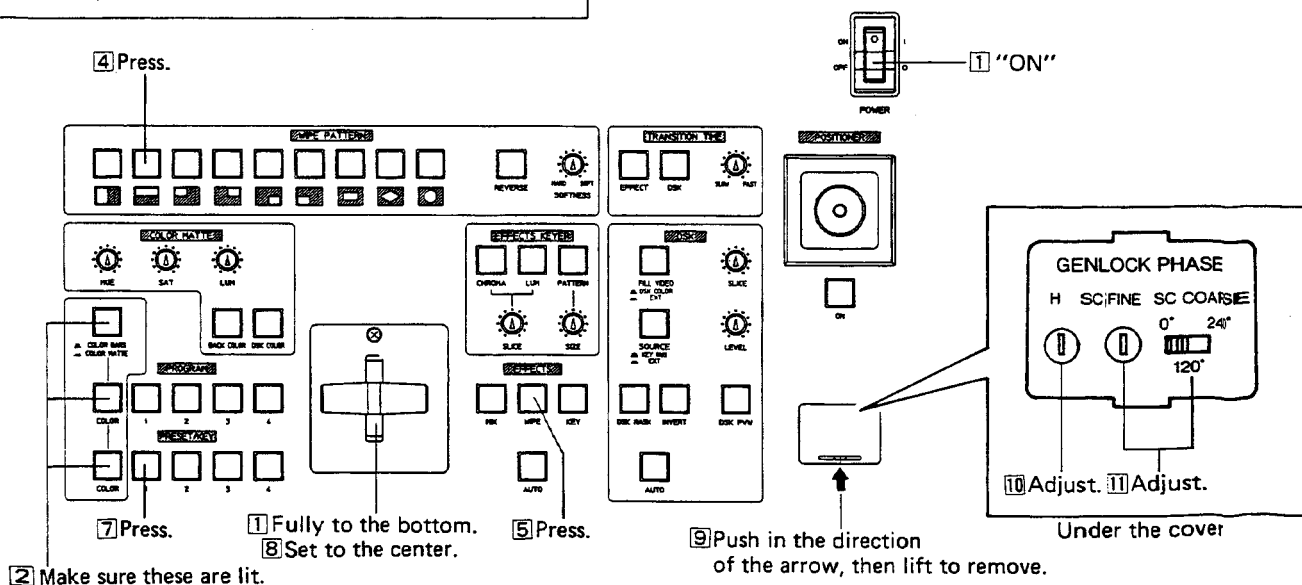
The monitor screen should be as shown below.



- 9 Remove GENLOCK PHASE cover over the phase adjustment controls at the lower right of the control panel of the KM-1600. To remove, lift the lower side of the cover.
- 10 Adjust the horizontal phase of the KM-1600 to correspond to the horizontal phase of input 1. Adjust the H.PHASE control so that the left edges of the PRESET/KEY bus picture and PROGRAM bus picture coincide with each other.
- 11 Match the color phase of the KM-1600 with that of input 1. Adjust the SC COARSE switch and SC FINE control so that the colors (color bars of the KM-1600) of the lower half of the screen are the same as the colors of the color bars in upper half of the screen (input 1).

Now, the internal sync signal of the KM-1600 coincides with the external sync signal. Now perform system adjustment of other units.

Proceed to System adjustment-2 on the next page.

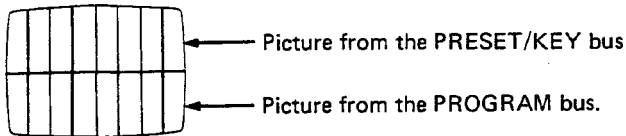


System adjustment-2

(To lock external units to the reference sync signal of the KM-1600.)

If an external reference signal is being input to the GENLOCK INPUT connector on the rear panel of the KM-1600, perform this adjustment after completing **System adjustment-1**.

- ① Perform steps ① to ⑤ of **System adjustment-1**.
- ② Select the input video equipment you want to adjust using the PRESET/KEY bus. Use the color bars as the input picture.
- ③ Set the fader lever to the center position.
The monitor screen will show the following.



Note:

If the video equipment output signal of which is to be adjusted is connected to the GENLOCK INPUT connector of the KM-1600, readjustment is unnecessary.

- ④ **Adjust the horizontal phase of the input video signal.**
Adjust the horizontal phase (H.PHASE) of the input unit so that the left edges of the PRESET/KEY bus picture and the PROGRAM bus picture coincide with each other.
- ⑤ **Match the color phase of the input picture.**
Adjust the color phase (SC PHASE) of the input units so that the colors of the color bars in the upper half of the picture (color bars of the input units) coincide with the colors (color bars of the KM-1600) in the lower half of the screen.
- ⑥ Perform horizontal phase and color adjustments for other input units (steps ② – ⑤) in the same way.
- ⑦ If color video cameras are included in the system, shoot the same subject (gray scale, for example) with each camera and fine-adjust the black level (pedestal), white level (video level) and chroma.

Notes:

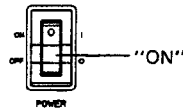
- For adjustment, use an underscanning color monitor. Adjustments are not possible with an ordinary TV monitor.
- For operation of the color video cameras or remote control units, refer to the relevant instruction manuals.

OPERATIONS

Before operation, be sure to perform system adjustments.

Switching the power ON

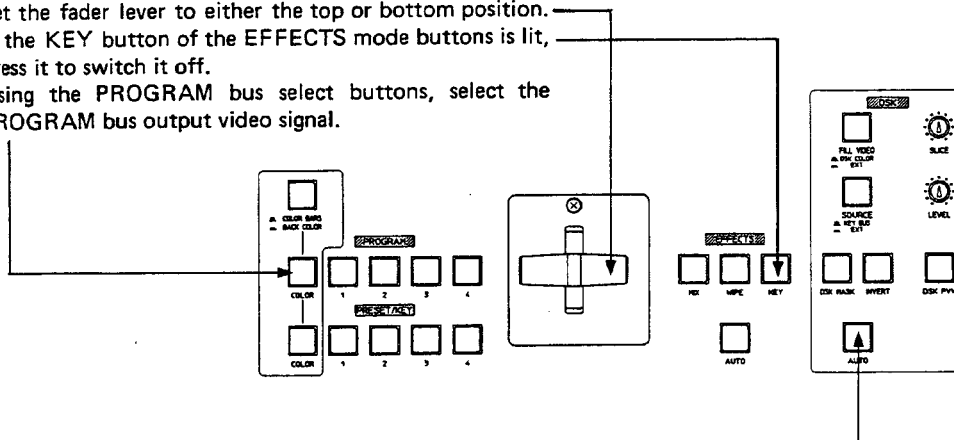
Set the POWER switch on the control panel to ON.



A. Replacing the PROGRAM bus output video signal with the PRESET/KEY bus video signal

Preparations

- 1 Set the fader lever to either the top or bottom position.
- 2 If the KEY button of the EFFECTS mode buttons is lit, press it to switch it off.
- 3 Using the PROGRAM bus select buttons, select the PROGRAM bus output video signal.



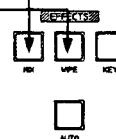
When the PROGRAM bus output video signal cannot be switched:

The signal may contain the DSK effect. Check if the AUTO button of the DSK controls is lit or not; if it is, press to switch it off. (Depending on the DSK transition time setting, it may take approx. 20 sec. to go off.)

To output the effect

- 4 Select the effect to be output.

- MIX effect: Press the MIX button.
- WIPE effect: Press the WIPE button, then select the wipe pattern. (To select the wipe pattern, refer to page 16.)
- CUT switching (with AUTO button): Set the TRANSITION TIME control to the FAST position. (For the setting method, refer to page 16.)



- 5 While viewing the preview monitor, select the video signal to replace the PROGRAM bus output using the PRESET/KEY bus buttons.



- 6 Output the PRESET/KEY bus video signal to the PROGRAM bus to replace the current PROGRAM bus video signal.

There are two ways to perform this operation, automatically and manually.

Manual: Use the fader lever.

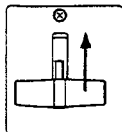
Automatic: The pictures are replaced automatically with the timing set by the TRANSITION TIME controls. (For the setting method, refer to page 16.)

An example in which the INPUT 1 signal is selected as the PROGRAM bus video signal and the INPUT 4 signal as the PRESET/KEY bus signal is shown on the next page.

Manual operation using the fader lever.

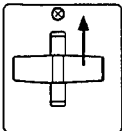
MIX and WIPE only

Output start

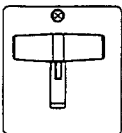


(The example shows the fader lever being moved up.)

During operation



Operation complete



When moved up fully, the operation will be completed.
(The same result can be obtained when the fader lever is moved down.)

Automatic operation using the AUTO button



Press the button.



The button blinks. If this is pressed during automatic operation, the operation stops with the button lit. If it is pressed again, the operation will start again.

When the operation is complete, the light goes out.

The picture on the program monitor

In the case of MIX



(INPUT 1 picture)

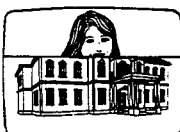


(Mixed state)



(INPUT 4 picture)

In the case of WIPE ()



(During wipe)



In the case of cut (Automatic operation only)



The moment the AUTO button is pressed, the picture will change.

Picture on the preview monitor



(INPUT 4 picture)



Upon completion of the operation, the picture will change.

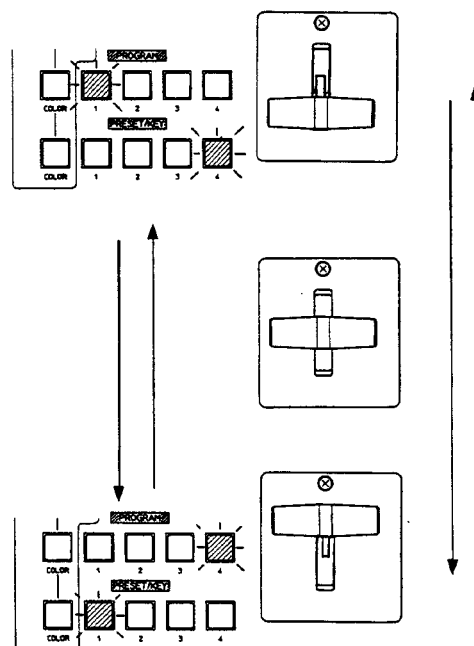
Reference information

- When the AUTO button is pressed in the middle of manual switching, automatic switching will start from the position where the fader lever was stopped. (The lever will not move.)
- The picture being switched will not be displayed on the preview monitor.
- Because of its flip-flop operation, when the fader lever is operated, the PROGRAM bus and PRESET/KEY bus select buttons will change as shown on the right. The PROGRAM bus is selected when the fader lever is fully up or down at all times. The picture selected by the PROGRAM bus buttons is always replaced by that selected by PRESET bus buttons. This is called flip-flop operation.
- The PRESET/KEY bus select button lights with two brightness.

When one is bright, it indicates that the video signal corresponding to that button is being output to the PROGRAM bus.

When one is dim, it indicates that the video signal corresponding to that button has been selected and is standing by to be output to the PROGRAM bus.

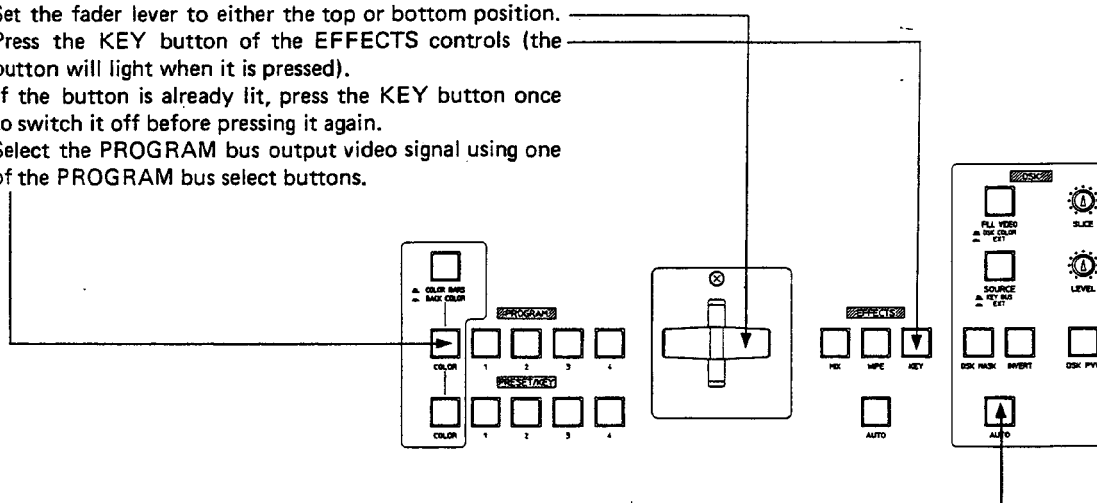
For example, if the fader lever is either fully up or down, one of the PROGRAM bus select buttons will always be bright. In the middle of a wipe or mix, the buttons selected by the PROGRAM bus and PRESET/KEY bus will both be bright.



B. Switching ON/OFF of the keying effects for the PROGRAM bus output video signal

Preparations

- 1 Set the fader lever to either the top or bottom position.
- 2 Press the KEY button of the EFFECTS controls (the button will light when it is pressed).
If the button is already lit, press the KEY button once to switch it off before pressing it again.
- 3 Select the PROGRAM bus output video signal using one of the PROGRAM bus select buttons.



Keying

The term "keying" refers to video effects in which a part of the PROGRAM (on-air) video selected on the PROGRAM bus is cut out and filled with another video signal. To cut out a part of the picture, a key hole signal is used. The video signal making the hole is called the key source and the video filling the hole is called the fill video. As chroma keying and luminance keying as performed by the KM-1600 use the same key source and fill (that is, the video which cuts out is filled), it is said to use the "self-key system".

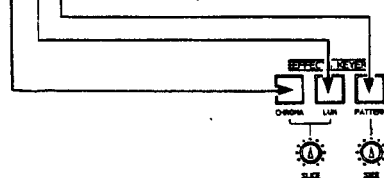
When the PROGRAM bus output video signal cannot be switched:

The signal may contain the DSK effect. Check if the AUTO button of the DSK controls is lit or not; if it is, press to switch it off. (Depending on the DSK transition time setting, it may take approx. 20 sec. to go off.)

Selection and setting the keying mode

- 4 Select the desired keying mode by pressing one of the three EFFECTS KEYS buttons (the button pressed will light).

- Chroma key
Press the CHROMA button. Portions of the video signal other than blue input to the CHROMA KEY R/G/B INPUT connectors on the rear panel will be the key source.
- Luminance key
Press the LUM button. The luminance component (Y) of the video signal selected by the PRESET/KEY bus will be the key source.
- Pattern key
Press the PATTERN button. The wipe pattern selected with the WIPE PATTERN buttons will be the key source.



Note:

Luminance keying is not possible while performing DSK effects using the PRESET/KEY bus video signal.

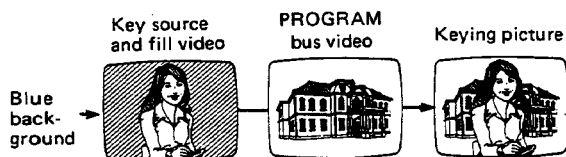
5 While viewing the preview monitor, set the keying condition.

● **Chroma keying**

As an example, a person in front of a blue background (blue cloth or wall, etc.) is chosen as the key source, which is then keyed into a video signal (landscape) being output on the PROGRAM bus.

The key source signal will be input from the CHROMA KEY R/G/B INPUT connectors.

- (1) Turn the SLICE knob fully clockwise. (If it is already turned fully clockwise, turn it counterclockwise once, then turn it clockwise again.) The blue background video which is to become the key source will appear on the preview monitor.
- (2) If the SLICE knob is turned counterclockwise gradually, the landscape (PROGRAM bus video) selected in step 3 will be keyed in over the blue area of the blue background image. Perform adjustment so that the optimum picture is obtained.



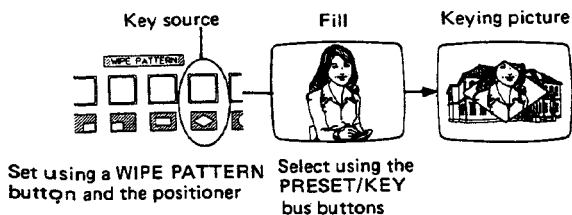
To obtain a clear chroma keying effect

- When using the blue background picture now being shot by a camera as a key source, use two or more lighting devices and illuminate it evenly so there are no shadows to permit clearer keying. If the person is wearing a blue shirt, etc., the picture is keyed into that portion as well; be careful.
- It is possible to mask a portion you do not wish to be keyed in.

● **Pattern keying**

The PROGRAM bus picture is cut out using the wipe pattern selected by the WIPE PATTERN buttons as the key source, then the picture selected on the PRESET/KEY bus is inserted as the fill video.

- (1) Select a wipe pattern. (For the selection method, refer to page 16.)
- (2) Set the SIZE knob to the center position.
- (3) Select the picture you wish to insert on the PRESET/KEY bus.
- (4) Using the SIZE knob, set the size of the wipe pattern as required.



● **Luminance keying**

In the case of luminance keying, select the key source using the PRESET/KEY bus.

As an example, a case where any arbitrary title (key source) being shot by a camera is keyed into the video signal on the PROGRAM bus is described.

- (1) Select the picture to be the key source using the PRESET/KEY bus button.
- (2) Turn the SLICE knob fully clockwise. (If it is already turned fully clockwise, turn it counterclockwise once then turn it clockwise again.) The title to be used as the key source will appear on the preview monitor.



- (3) If you turn the SLICE knob counterclockwise, the PROGRAM bus picture selected in step 3 is gradually keyed in over the dark portions of the key source. Adjust to obtain the optimum picture.



Select using the PRESET/KEY bus

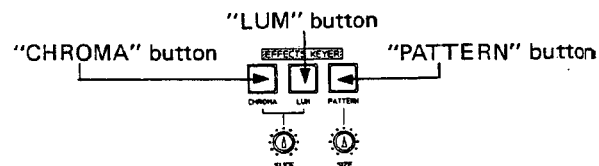
To obtain a clearer luminance keying effect

- When using a title being shot by a camera as the key source, use two or more lighting devices and illuminate it evenly so there are no shadows to permit clearer keying.
- It is possible to mask a portion you do not wish to be keyed in.

● **Key masking**

With chroma or luminance keying using the EFFECTS KEYS controls, it is possible to mask a portion you do not wish to key in using a suitable wipe pattern. This cannot be performed when pattern keying is being performed or masking is being performed using the DSK controls.

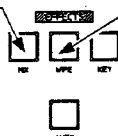
- 1 Press the keying mode select button and the "PATTERN" button simultaneously. That is, in the case of chroma keying, press the CHROMA button and PATTERN button (both buttons light). In the case of luminance keying, press the LUM button and PATTERN button (both buttons light).
- 2 Select the required wipe pattern using the WIPE PATTERN buttons according to page 16.
- 3 Set the size of the area to be masked with the SIZE control of the EFFECTS KEYS controls.



To output the effect

6 Select the effect to be output.

- MIX effect: Press the MIX button.
- CUT switching with AUTO button: Referring to page 16, set the TRANSITION TIME control to the FAST position.



- WIPE effect: After pressing the WIPE button, refer to page 16 to set the wipe pattern.

7 Output the keying effect set up in step 5 to the PROGRAM bus.

There are two way in which the output operation can be performed, automatically and manually.

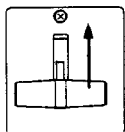
Below is an example where a title is keyed in using luminance keying.

Manual: Use the fader lever.

AUTO: The effect is automatically output with the timing set by the TRANSITION TIME control. (For the setting method, refer to page 16.)

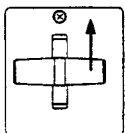
Manual operation using the fader lever

MIX and WIPE only
Output start

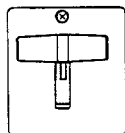


(Example in which the lever is moved up)

During output



Output is complete



When moved fully up, output is complete. (The same result can be obtained by moving the lever down.)

Automatic operation using the AUTO button



Press the button



The button lights and the title is keyed in. If the button is pressed while being input, the operation stops halfway. Press it again to restart the operation.

The light goes out when output is complete

Picture on the program monitor

In the case of mix



(INPUT 1 picture)



(Mixed condition)



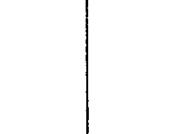
In the case of wipe ()



(During wipe)



In the case of cut switching
Automatic operation only



The moment the AUTO button is pressed the title will be keyed in.

Picture on the preview monitor



(INPUT 1 picture whose title is keyed)



Upon completion of output, the picture will change.

To remove the effect from the PROGRAM bus

Fader lever operation

When the fader lever is moved fully in the opposite direction, the title will disappear, according to the effect.

AUTO button operation

When the AUTO button is pressed the title will disappear, according to the effect.

Effect

In the case of MIX
The picture will fade out.

In the case of WIPE
Disappears in the same direction as during output. For it to disappear from the opposite direction press the REVERSE button in the WIPE PATTERN buttons.

In the case of CUT
The moment the AUTO button is pressed the title will disappear.

Reference information

- If the lever is stopped and the AUTO button is pressed during manual operation, automatic operation will start from the point at which the lever was stopped (the lever will not move).
- The picture being output does not appear on the preview monitor.

- The fader lever does not perform flip-flop operation in the keying on-off mode. (The picture selected on the PROGRAM bus is not switched with the picture selected on the PRESET/KEY bus when the lever is operated.)

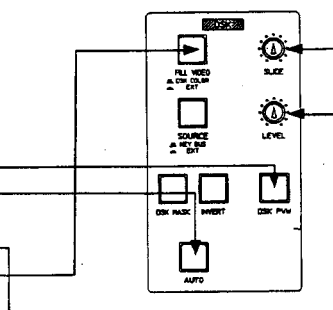
C. Switching ON/OFF the DSK effect to the PROGRAM bus

DSK stands for Down Stream Keyer.

Keying is performed immediately before the PROGRAM bus picture is output.

Preparation

- Set the DSK while viewing the preview monitor.
- 1 Press the DSK PVW button (it lights).
- 2 If the AUTO button is lit, press it to switch off. (Sometimes it may take approx. 20 sec. until it goes out.)
- 3 Turn the SLICE and LEVEL controls fully clockwise.
- 4 When the FILL VIDEO button is not lit, press the button so that it lights.



Setting

- 5 Select the DSK key source using the SOURCE button.
KEY BUS (lit): The luminance component (Y) of the picture selected by the PRESET/KEY bus will be the key source.
EXT (unlit): The signal input to the DSK KEY INPUT connector on the rear panel will be the key source.
- 6 Select the fill video (picture to be inserted).
While the FILL VIDEO button is lit, the DSK color signal set by the COLOR MATTE controls will be the fill video signal.
When the button is not lit, the video signal created from the R/G/B signals input from the DSK R/G/B INPUT connectors on the rear panel will be the fill video signal.
- 7 If you turn the SLICE control counterclockwise, the picture keyed in will appear on the preview monitor. Set it so that the optimum picture is obtained.
To change the degree of mixing with the PROGRAM bus

video, set the LEVEL control.

- 8 Perform the following settings as required:

- Masking: Mask the portion you do not wish to be keyed in using the wipe pattern.
(This is not possible while pattern keying or masking is being performed using the EFFECTS KEYS controls.)
 - 1) Press the DSK MASK button (it will light).
 - 2) Referring to page 16, "Setting the wipe pattern", select the wipe pattern to be used.
 - 3) Set the area to be masked using the SIZE control of the EFFECTS KEYS controls.
- Key source inversion
The key source signal is reversed to a negative, producing an inverted key.
 - 1) Press the INV button (it will light).
 - 2) The key source signal will be inverted and the PROGRAM bus picture will be replaced with the fill video signal.

To insert the effect

- 9 Referring to page 16, set the transition time.
- 10 If the AUTO button is pressed, the DSK effect will be output to the PROGRAM bus with the set timing. (The button blinks during output.) If it is pressed again, the DSK will be removed from the PROGRAM bus with the same timing as during insertion.

Note:

If luminance keying is being performed with the EFFECTS KEYS controls, the PRESET/KEY bus picture cannot be used as a DSK key source.

Reference information

- If the AUTO button is pressed while the DSK effect is being inserted or removed (while the AUTO button is blinking), the operation will be reversed instantaneously. That is, the mode will be switched from insertion to removal or vice versa.
- If EXT is selected as the key source, the signal input to the DSK R/G/B INPUT connectors on the rear panel can be made the key source by internal switching. If internal switching is necessary, consult a JVC-authorized service agent.

D. Setting the wipe pattern, transition time and color signal

Setting the wipe pattern

Set a wipe pattern when a wipe effect or a pattern key is to be performed using the EFFECTS controls or when masking is to be performed using the DSK controls. The wipe pattern is selected using the WIPE PATTERN buttons and positioner.

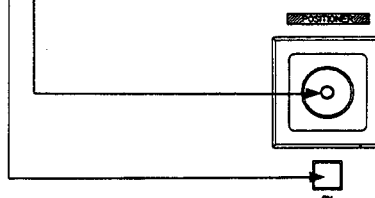
- 1 Select the wipe pattern by pressing the button over the pattern you want (the button pressed will light).
- 2 Select the direction in which the pattern is to move by pressing the REVERSE button.
Normal (unlit): The wipe pattern moves in the direction in which the white area of the pattern increases.
Reverse (lit): The wipe pattern moves in the direction in which the black area of the pattern increases.
- 3 Using the SOFTNESS control, adjust the softness of the edges of the pattern. Turning it to the SOFT position makes the edges softer. The function is switched off when the control is turned to the HARD position.

This cannot be used during pattern keying or masking.



- 4 With the , or wipe patterns, the position of the wipe pattern can be shifted with the POSITIONER control.

- 1) Press the ON button. (The button will light.)
- 2) The pattern will move in the direction in which the joystick is inclined.
- 3) If the button is pressed once again, the POSITIONER controls are turned OFF and the wipe pattern will return to the center position. (The light will go out.)

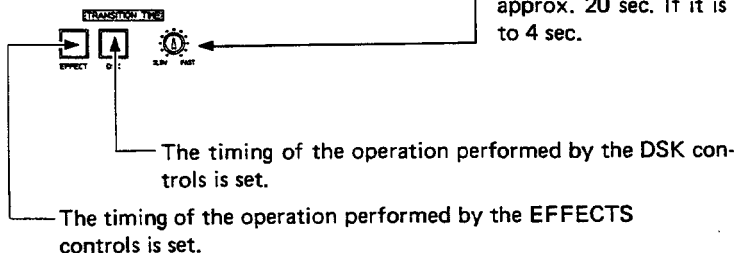


Setting the transition time

Set the timing with which auto operation is performed by the EFFECTS or DSK controls.

- 1 Select the effect transition time of which is to be set by pressing one of the buttons shown below. (The button pressed will light.)

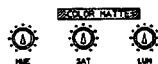
- 2 Set the transition time using the control.
If the control is set to the FAST position, the effect timing will be 0 sec. That is, cut operation will be performed.
If it is turned to the SLOW position, the timing will be approx. 20 sec. If it is in the center, it will be approx. 3 to 4 sec.



Setting the color signal

The background color used by the cross-point select buttons or the DSK color used by the DSK controls is set.

- 1 Select the item for which the color signal is to be preset by pressing one of the following buttons: The button pressed will light.



To set the BACK COLOR selected on each BUS.



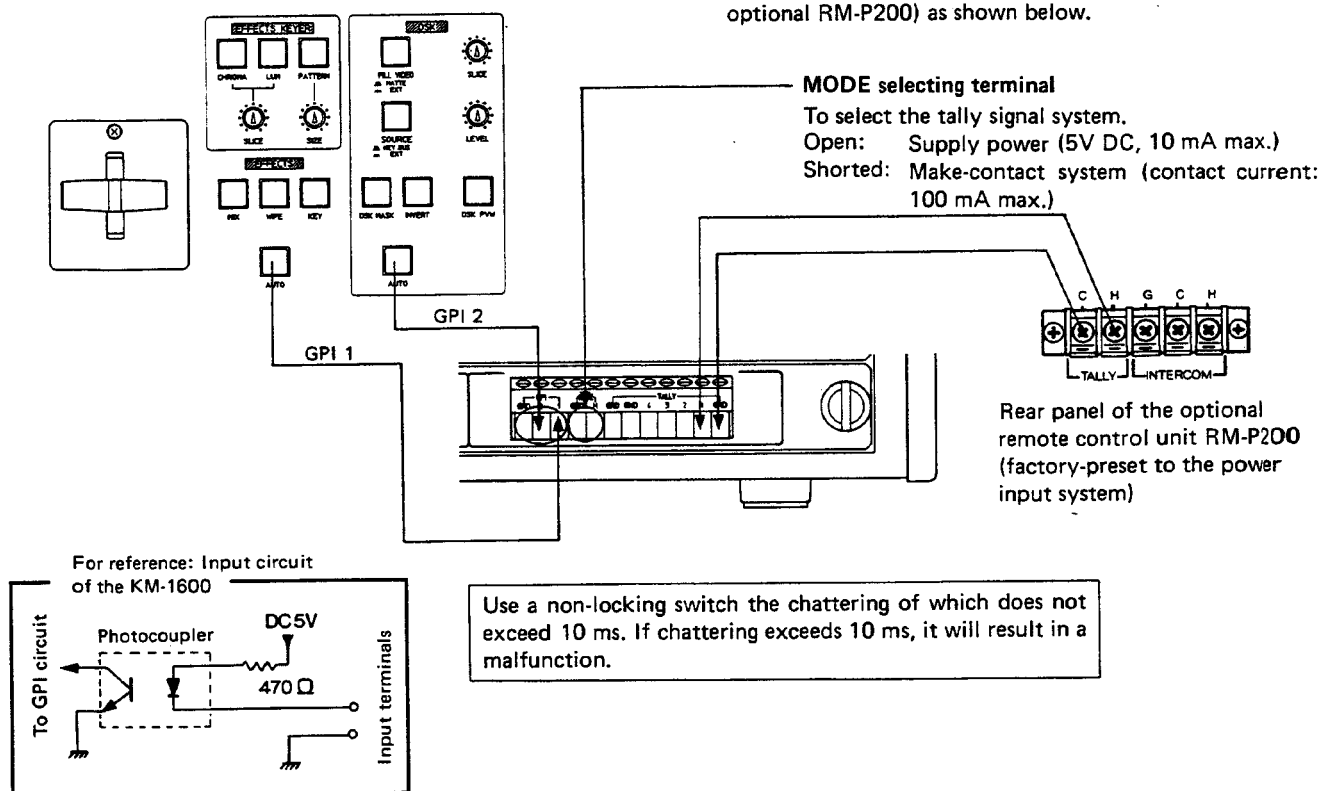
To set the DSK color.

- 2 Adjust the color using HUE/SAT/LUM controls.
HUE: Varies the hue by 360°.
SAT: Sets the color saturation. If this control is turned fully counterclockwise, the color signal will become a monochrome signal.
LUM: Sets the luminance (brightness).

OTHER FUNCTIONS

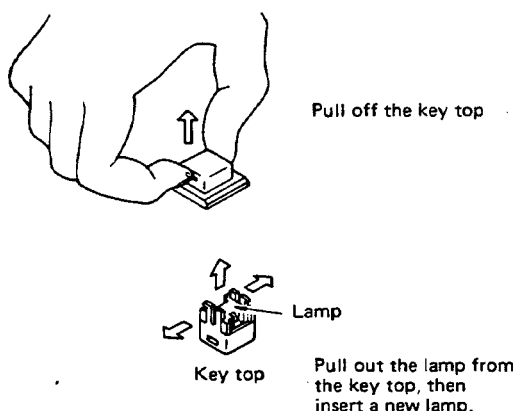
GPI (General Purpose Interface) connections

Connect switches to these terminals to remote control KM-1600 effects. These switches function in the same way as the buttons on the control unit of the KM-1600.



Replacing lamps

If a lamp in any of the bus line or wipe select pushbutton switches, etc. does not light, replace it with the spare lamp as follows:



SPECIFICATIONS

Input signals

Y/C 443 video input (4 channels): Y = 1 Vp-p (with sync)
C = 0.3 Vp-p (burst level), 75 ohm (7-pin)

Sync signal: BB 0.45 Vp-p, 75 ohm or high impedance (BNC)

Chroma key: RGB 0.7 Vp-p (no sync), 75 ohm (BNC)

DSK KEY: VS or VBS 1 Vp-p, 75 ohms (BNC)

DSK R/G/B: RGB 0.7 Vp-p (no sync), 75 ohm (BNC)

GPI: Make-contact input (Terminal)

Output signals

Program Y/C 443: Y = 1 Vp-p (with sync)
(2 channels) C = 0.3 Vp-p (burst level), 75 ohm (7-pin)

Preview Y/C 443: Y = 1 Vp-p (with sync)
C = 0.3 Vp-p (burst level), 75 ohm (7-pin)

Program VBS: 1 Vp-p, 75 ohm (BNC)

Preview: VBS 1 Vp-p, 75 ohm (BNC)

Tally: +5 V or contact supply (Terminal)

Program Y/C 924: Y = 0.5 Vp-p (with sync)
C = 0.5 Vp-p (chroma level), 75 ohm
(Switchable with Program Y/C 443-1)

Reference sync signal outputs

BB (2 channels): 0.45 Vp-p, 75 ohm (BNC)

HD: 4 Vp-p, 75 ohm (BNC)

VD: 4 Vp-p, 75 ohm (BNC)

SYNC: 4 Vp-p, 75 ohm (BNC)

Frequency response: 60 Hz to 5 MHz ± 0.5 dB

S/N ratio: 60 dB p-p/rms

Y/C phase difference: 20 nsec

Power requirements: 50 W, 220 – 240 VAC, 50/60 Hz

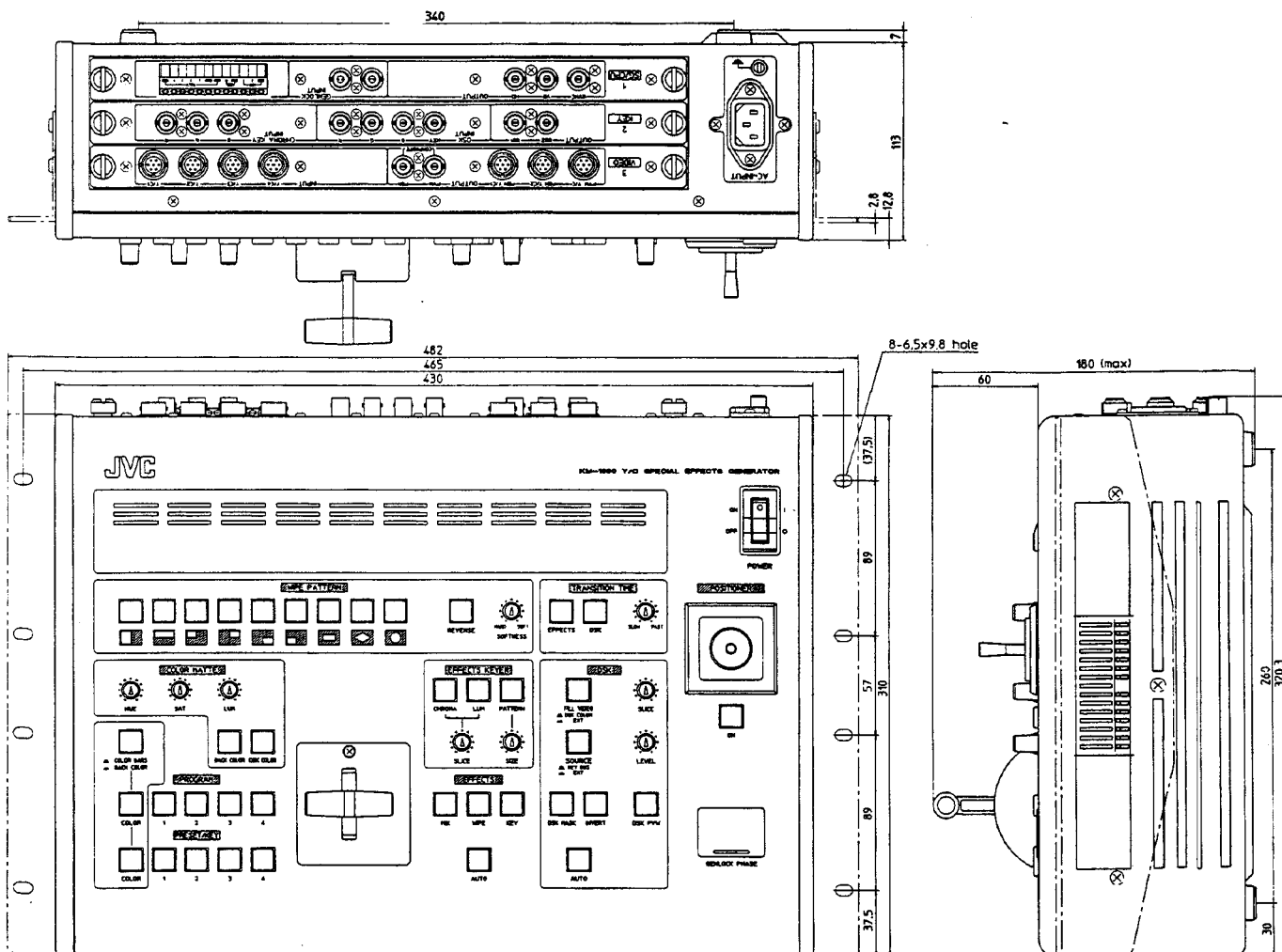
Operating temperature range: 5°C to 40°C (40°F to 104°F)

Weight: 9.5 kg 21 lbs.

Accessories

Power cord (QMP4908-250: EG type)	1
(SCV0419-2M5: EK type)	1
(SCV0420-2M5: EA type)	1
75 ohm termination plug (SCV0286-001)	1
Side bracket (SC20405-00A: Same for the right and left)	2
Side bracket fixing screws (SDSP4016M)	4
Spare lamp (SCV0302-100)	1

Dimensions (unit: mm)



Änderungen der in dieser Bedienungsanleitung enthaltenen Daten sind vorbehalten.

WARNUNG:
ZUR VERHINDERUNG VON FEUER UND
ELEKTRISCHEN SCHLÄGEN DIESES
GERÄT NICHT NÄSSE ODER
FEUCHTIGKEIT AUSSETZEN.

Achtung
FÜR IHRE SICHERHEIT

Um einen sicheren Betrieb zu gewährleisten, darf der Schuko-Stecker nur an eine Schuko-Steckdose angeschlossen werden, um eine ausreichende Erdung zu gewährleisten.

Verwenden Sie zu diesem Gerät nur dreiadrige Verlängerungskabel und achten Sie auf eine richtige Verdrahtung der Verlängerungskabel, um eine Schutzerdung zu gewährleisten. Falsch verdrahtete Verlängerungskabel sind eine Hauptursache für Unfälle.

Aus der Tatsache, daß das Gerät befriedigend arbeitet, läßt sich nicht schließen, daß eine ausreichende Schutzerdung hergestellt ist und daß die Installation vollkommen sicher ist. Wenn Sie bezüglich der Schutzerdung Zweifel haben, wenden Sie sich an einen qualifizierten Elektriker.

ACHTUNG – DIESES GERÄT
MUSS GEERDET WERDEN
WICHTIG

Die Adern in diesem Netzkabel sind nach dem folgenden Farbschema gekennzeichnet:

GRÜN und GELB:	ERDE
BLAU:	NEUTRAL
BRAUN:	STROMFÜHREND

Da dieses Farbschema unter Umständen nicht mit dem übereinstimmt, nach welchem die Klemmen in Ihrer Steckdose gekennzeichnet sind, gehen Sie bei der Erdung folgendermaßen vor: Der GRÜN und GELB gekennzeichnete Leitungsdraht ist mit der Klemme zu verbinden, die mit dem Buchstaben E oder mit dem Symbol für Erde oder mit der Farbe GRÜN oder GRÜN und GELB gekennzeichnet ist. Der BLAU gekennzeichnete Leitungsdraht ist mit der durch N oder SCHWARZ gekennzeichneten Klemme zu verbinden. Der BRAUN gekennzeichnete Leitungsdraht muß mit der Klemme verbunden werden, die mit L oder ROT gekennzeichnet ist.